

Standard Operating Procedure: Sulfuric Acid

Laboratory Information

Department:	
Principal Investigator(s):	
Laboratory Manager/Supervisor (or designated laboratory-specific chemical hygiene officer):	
Laboratory emergency contact (name and phone):	
Laboratory phone:	
Designated area (s) of these procedures with chemical(s): (building and room):	
Agent storage location (building and room) and specifics regarding location/container/cabinets:	

Chemical Information

Chemical Name(s), including CAS No: 	Sulphuric acid CAS 7664-93-9
GHS Classification and Hazard Statements (see SDS sheet provided by the chemical's manufacturer): Example: Ethanol: H225: Highly Flammable liquid and vapor [Danger Flammable liquids]; H319: Causes serious eye irritation [Warning Serious eye damage/eye irritation] OSHA Permissible Exposure Limit (PEL) is 1 mg/m³ over 8 hours. Corrosive - causes severe skin burns and serious eye damage. Corrodes metals. Reacts with most metals to produce hydrogen gas, which is flammable and explosive. Can react with many substances to generate highly toxic products. Reactions may be violent. Possible carcinogen and particularly hazardous substance.	

Signs and symptoms of exposure or release	Direct local effects on the skin, eyes and gastrointestinal tracts after direct exposure to sufficient concentrations. Small droplets of sulfuric acid (aerosol/mist) can also be inhaled and cause direct local effects on respiratory tract. If the eyes have come in contact with sulfuric acid, irritation, pain, swelling, corneal erosion, and blindness may result. Dermal exposure may result in severe burns, pain, and dermatitis (red, inflamed skin).
Routes of exposure	Serious local effects by all routes of exposure. The substance can be absorbed into the body by inhalation of its aerosol.
Required engineering controls: (i.e., chemical fume hood, biological safety cabinet, glove box, temperature control, humidity control, shielding, luer-lock syringe, in-line HEPA filter, etc.)	Eyewash/drench hose is required in immediate work area. A safety shower is required for use of large quantities. Work in a clean chemical fume hood free of incompatible materials.
Personal Protective Equipment (PPE) required for procedures:	Fully buttoned lab coat Safety goggles 5 m neoprene gloves, or double pair 4m nitrile gloves for 10-30 minutes of protection. Gloves must be immediately changed if contaminated or compromised. For expected hand contact or long duration procedures use laminate or butyl gloves. For work with amounts >100 ml or for procedures with risk of splash: add face shield and disposable sleeves or gown/coverall.
Known incompatibilities with chemical(s):	Organics, bases, halides, nitrates, chlorates, reducing agents
Special storage and handling considerations:	Store in secondary containment in a well ventilated area. Transport in secondary containment, preferably a Polyethylene or other non-reactive acid/solvent bottle carrier. Store below eye level, protected by a bin or within a corrosives cabinet. Do not store under or near the sink. When diluting, add acid to water slowly, in small amounts. (Never add water to acid!)
Please list the approximate amount(s) of chemical(s) utilized in all procedures	

Please describe, in a stepwise fashion, the work practices and procedures involved in the handling and utilization of this agent.

Please be clear and complete in the description of procedures (i.e., measuring, weighing, pouring, mixing, injection, mixing, transporting, administration to animals, heating, etc.).

Be sure to include any precautionary safety steps undertaken during these procedures.

Please submit additional pages, if necessary.

Waste collection and disposal procedures:	Waste chemicals shall be collected in a secured area. The area shall be free from evidence of spills. A Hazardous Waste label shall be affixed to the collection container and components shall be listed on the label as they are introduced into the container. Do not date containers until the day of scheduled pickup. Additionally, the container shall be marked with the hazard class of the chemical waste (i.e., Ignitable, Toxic, Reactive, Corrosive). When the container is no more than 2/3 full, date the container and submit a pick-up request in the UK E-trax system: https://etrax.chematix.com/Chematix/
Spill procedure: Lab Specific Notes on Spill Response: For clean-up of small spills (<200 ml), wear butyl or laminate gloves and neutralize with sodium carbonate from edge to center, then absorb with inert material. Do not use combustible materials such as saw dust to absorb sulfuric acid spills! Decontaminate work area by wiping it down with a soap and water solution.	Major spills of stock solution: Leave the area and notify others not to enter. Report the spill to the UK Environmental Quality Management Department (EQMD) at (859) 323-6280 (M-F 8am-5pm) or after hours by dialing 911 from any on-campus phone or by contacting the UK Police at (859) 257-UKPD (8573). Minor spills of manageable amount: If necessary, contact EQMD for guidance. Consult manufacturer's SDS for instructions and compatibilities for your chemical (Be aware of any materials such as paper towels or water that could be incompatible with your spilled chemical!
Response procedures in the case of an incident or injury:	UK Employees: • After receiving first aid (refer to the chemical's SDS), report the occupational exposure to a hazardous chemical to UK Worker's Care at 1-800-440-6285. • If needed, an appointment will be made for the employee at UK UHS. • For severe emergency or injury, call 911 or proceed to the UK Chandler Hospital Emergency Department UK Students: • Call UHS at (859) 323-APPT to report an occupational exposure to a chemical hazard. • If needed, an appointment will be made for the employee at UK UHS. For severe emergency or injury, call 911 or proceed to the UK Chandler Hospital Emergency Department Additional Lab-Specific Emergency Procedures:

A copy of the manufacturer's SDS for this agent and the PI approved SOP shall be kept in the lab's Chemical Hygiene Plan (CHP). The CHP shall be stored in a location known to all laboratory personnel and is accessible during work hours.

Personnel Training

- Prior to conducting any work with (name of the chemical), designated personnel must be provided training specific to the hazard involved in working with the substance.
- The PI must provide his/her lab personnel with a copy of the SOP and a copy of the SDS provided by the manufacturer. Any further training materials must be documented and stored in the lab's Laboratory Safety Manual and available to internal UK or external oversight agency inspectors.
- The PI must ensure that his/her lab personnel have completed the initial and the consecutive annually required Chemical Hygiene trainings and Hazardous Waste training.

The undersigned have read and understood the content of this SOP and the SDS for: **Sulfuric Acid**

[illegible]

SOP Reviewed and Approved by:

PI: (typed name)	
PI: (signature and date)	
Lab Manager/Supervisor (typed name)	
Lab Manager/Supervisor (signature and date)	